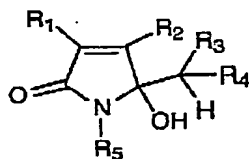


## CLAIMS:

1. A method for the preparation of compound of formula II



II

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wherein  $R_1$  and  $R_2$  are independently selected from the group H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted substituted or unsubstituted oxoalkyl, substituted or unsubstituted substituted or unsubstituted alkenyl, substituted or unsubstituted substituted or unsubstituted aryl or arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

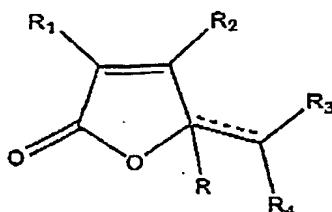
$R_3$  and  $R_4$  are independently selected from the group H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl;

$R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted alkylsilyl, substituted or unsubstituted substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface,

the method comprising reacting a compound of formula I

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1

wherein R<sub>1</sub> and R<sub>2</sub> are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

R<sub>3</sub> and R<sub>4</sub> are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and R is hydroxy, halogen; and

"-----" represents a single bond, in which case R is absent, or a double bond, provided that at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is halogen,

with a compound of formula R<sub>5</sub>NH<sub>2</sub>

wherein R<sub>5</sub> is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

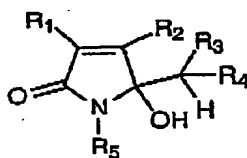
2. A method according to claim 1, wherein, at least one of R<sub>1</sub>, R<sub>2</sub>, R<sub>3</sub> and R<sub>4</sub> is halogen.

3. A method according to claim 1 or 2, wherein R<sub>5</sub> is a residue of a naturally occurring compound.

4. A method according to claim 1 or claim 2, wherein R<sub>5</sub> is a biomolecule.

5. A method according to claim 4, where R<sub>5</sub> is a coenzyme or cofactor.

6. A method according to any one of claims 1 to 5, wherein  $R_5$  is an oligomer or a polymer
- 5 7. A method according to claim 6, wherein the oligomer or polymer is a biomolecule.
8. A method according to claim 7, wherein  $R_5$  is a peptide or polyamide.
- 10 9. A method according to any one of claims 1 to 6, wherein  $R_5$  is a protein residue.
10. A method according to claim 9, where  $R_5$  is an enzyme or a receptor.
11. A method according to any one of claims 1 to 7, wherein  $R_5$  is an oligomer or polymer comprising nucleic acid residues.
- 15 12. A method according to claim 11, wherein  $R_5$  is a polynucleotide.
13. A method according to claim 12, wherein the polynucleotide is DNA or RNA.
- 20 14. A method according to claim 1, wherein  $R_5$  is a surface or a substrate with which the nitrogen atom of compound II is associated.
15. A method according to claim 14, wherein the association is chemical bonding.
- 25 16. A method according to claim 15, wherein the association is covalent bonding.
- 30 17. A method according to any one of claim 1 or claim 14, wherein the surface or substrate may be biological or synthetic.
18. A compound of formula II:



II

35 wherein  $R_1$  and  $R_2$  are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or

unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

- $R_3$  and  $R_4$  are independently H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl;

- $R_5$  is selected from the group consisting of H, hydroxy, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl, substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

- forms part of an amino acid, or is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

19. A compound according to claim 18, wherein  $R_5$  is a D- or L- nucleoside.

20. A compound according to claim 18, wherein  $R_5$  is an oligomer or a polymer.

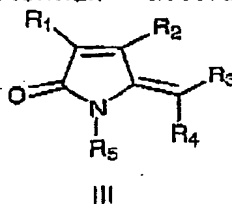
21. A compound according to claim 18, wherein  $R_5$  is dendrimer.

22. A compound according to claim 18, wherein  $R_5$  is a substrate.

23. A compound, according to claim 18, wherein  $R_5$  is a surface.

24. A compound according to claim 18, wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  is halogen.

25. A method for preparing a compound of formula III, the method comprising dehydration a compound of formula II according to claim 18 or 19:



wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

$R_3$  and  $R_4$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and  $R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or forms part of an amino acid, or is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

25.A method according to claim 25, wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  in formula III is halogen.

26.A method according to claim 24 or 25, wherein the dehydration is carried out in the presence of a dehydrating agent.

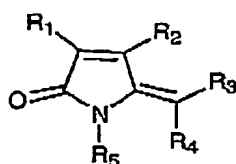
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27.A method according to claim 26, wherein the dehydrating agent is selected from the group consisting of phosphorus pentoxide, silica gel, molecular sieves, alumina, acidic resins and polymers, phosphorus oxychloride, acetic anhydride, N,N'-dicyclohexylcarbodiimide (DCC), trifluoroacetic acid, sulfuric acid, trifluoroacetic anhydride, and trifluorosulfonic acid anhydride (triflic anhydride).

30

28.A compound of formula III:

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III

wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

$R_3$  and  $R_4$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and

$R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

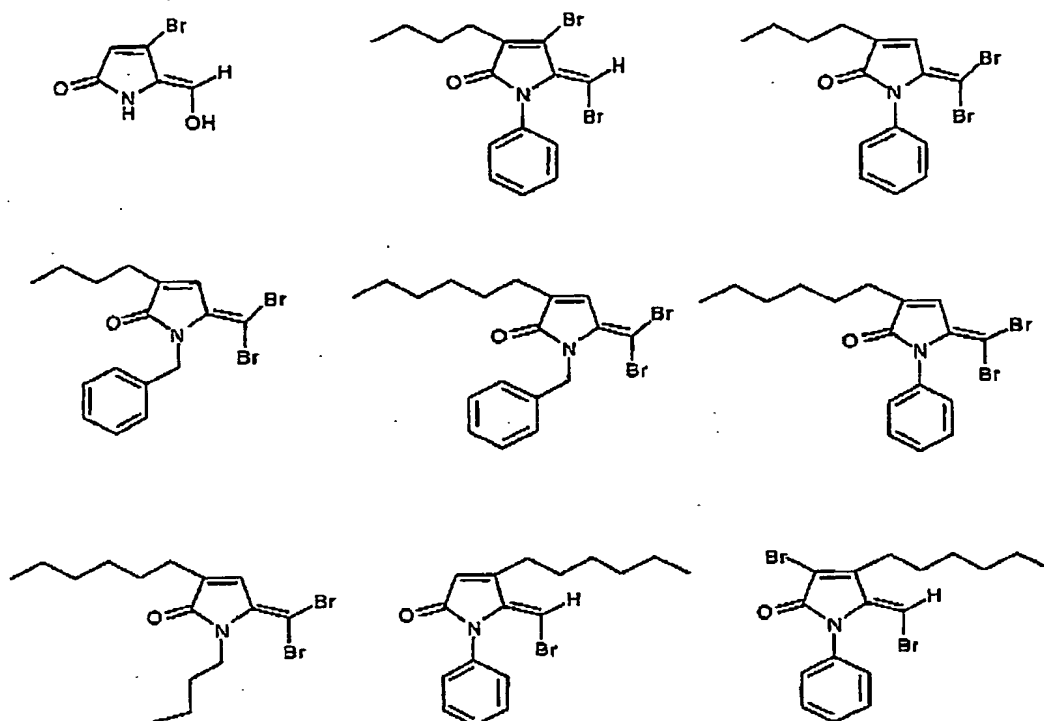
forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

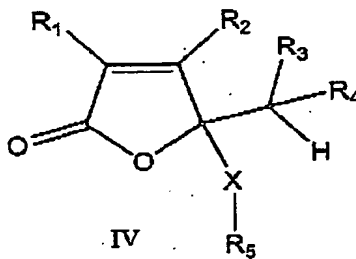
29. A compound according to claim 28, wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  is halogen.

30. A compound according to claim 28 or 29, selected from the group consisting of:

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31. A method for the preparation of a compound of formula IV



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wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

10

$R_3$  and  $R_4$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl; and

- $R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or
- 10 forms part of an amino acid, or
- is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface,

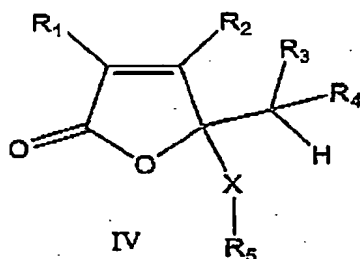
X is O or  $NR_6$ , where  $R_6$  be independently selected from  $R_1$ ,

- the method comprising reacting a compound of formula I as defined in
- 15 claim 1, wherein  $R_3$  is a hydrogen and "====" represents a double bond.

32. A method according to claim 32, wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  is halogen.

- 20 33. A method according to claim 31 or 32, wherein  $R_6$  is H.

34. A compound of formula IV



25

wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl,



optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

$R_3$  and  $R_4$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or  
5 unsubstituted aryl or arylalkyl;

$R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally  
10 interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface; and

15 X is O or  $NR_6$ , where  $R_6$  be independently selected from  $R_1$ .

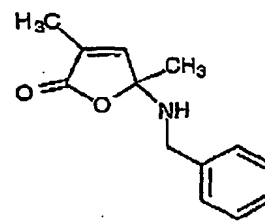
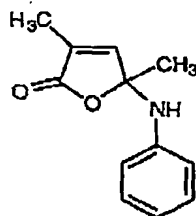
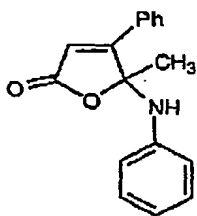
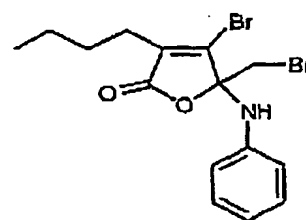
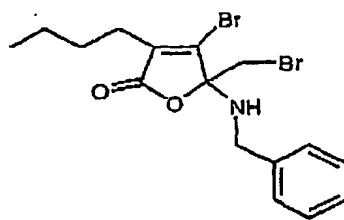
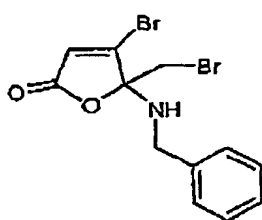
35.A compound according to claim 30, wherein at least one of  $R_1$ ,  $R_2$ ,  $R_3$  and  $R_4$  is halogen.

20 36.A compound according to claim 34 or 35, wherein X is  $NR_6$ .

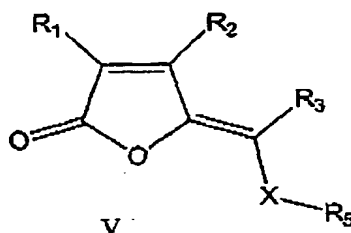
37.A compound according to claim 36, wherein  $R_6$  is an optionally substituted arylalkyl.

25 38.A compound according to claim 34 selected from the group consisting of:

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39. A compound of formula V:



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wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic;

$R_3$  is selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted aryl or arylalkyl;

X is O or  $NR_6$ , where  $R_6$  is as defined above; and

$R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or

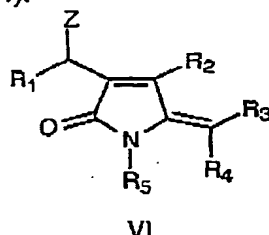
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unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

- 5 is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface.

40. A compound of formula (VI):



- 10 wherein  $R_1$  and  $R_2$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted alkoxy, substituted or unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched
- 15 chain, hydrophilic or fluorophilic;

$R_3$  and  $R_4$  are independently selected from H, halogen, substituted or unsubstituted alkyl, substituted or unsubstituted aryl or arylalkyl;

- $R_5$  is selected from the group consisting of H, substituted or unsubstituted alkyl, hydroxy, substituted or unsubstituted alkoxy, substituted or
- 20 unsubstituted oxoalkyl, substituted or unsubstituted alkenyl, substituted or unsubstituted aryl or substituted or unsubstituted arylalkyl, optionally interrupted by one or more hetero atoms, straight chain or branched chain, hydrophilic or fluorophilic, or

forms part of an amino acid, or

- 25 is a nucleoside, an oligomer, a polymer, a dendrimer, a substrate or a surface; and

$Z$  is selected from the group  $R_2$ , halogen,  $OC(O)R_2$ ,  $=O$ , amine azide, thiol,  $R_2$ , mercaptoaryl, arylalkoxy, mercaptoarylalkyl,  $SC(O)R_2$ ,  $OS(O)_2R_2$ ,  $NHC(O)R_2$ ,  $=NR_2$  or  $NHR_2$ .

30

41. An oligomer or a polymer formed by oligomerising or polymerising a compound of formula II – VI directly or with one or more other monomers.
42. An oligomer or a polymer according to claim 41, wherein the one or more other monomer is selected from the group acrylate ester such as substituted or unsubstituted alkyl, hydroxyalkyl, aminoalkyl, or substituted substituted or unsubstituted aryl acrylates or methacrylates, crotonates, substituted or unsubstituted acrylonitriles, vinyl alcohols or acetates, styrene and siloxanes.
43. A surface coating or polymer having incorporated therein a compound according to any one of the preceding claims.
44. Use of a compound according to any one of claims as antimicrobial and/or antifouling agent.
45. Use of a compound according to any one of claims 18, 28, 34, 38, 39 or 40 in a medical, scientific and/or biological application(s).
46. A composition comprising at least one compound according to any one of claims 18, 28, 34, 38, 39 or 40 and a carrier or diluent.
47. A composition according to claim 46, where the carrier or diluent is a liquid
48. A composition according to claim 46, where the composition is in the form of a solution or suspension of at least one of the compounds.
49. A composition according to claim 47 or 48, wherein the liquid is an aqueous solvent or a non-aqueous solvent.
50. A composition of claim 46, wherein the solvent is a one or more organic solvent(s).
51. A composition according to claim 47, wherein the liquid is an ionic liquid.

- 52.A composition according to any one of claims 46 to 51, in an aerosol or powder formulation.
- 53.A composition according to any one of claims 46 to 52, including organic or inorganic polymeric substances.
- 54.A composition according to claim 53, wherein the compound is admixed with a polymer or bound to, or adsorbed on to, a polymer.
- 55.A composition according to any one of claims 46 to 54 formulated as a disinfectant or cleaning formulation.
- 56.A composition according to any one of claim 46 to 55 in the form of a powder, solutions, suspension, dispersion, emulsion or gel.
- 57.A composition according to any one of claims 46 to 54 in the form of a pharmaceutical composition comprising a pharmaceutically acceptable carrier, diluent and/or excipient.
- 58.A composition according to claim 57, wherein the composition is a form suitable for parenteral or non-parenteral administration.
- 59.A composition according to claim 58 formulated for topical, intradermal, intramuscular, intraperitoneal, intravenous, subcutaneous, intranasal, epidural, ophthalmic, or oral administration.
- 60.A composition according to claim 57 formulated for administration by infusion or bolus injection, absorption through epithelial or mucocutaneous linings and may be administered together with other biologically active agents.
- 61.A composition according to claim 57 formulated for use in an inhaler or nebulizer.

62. A method of treating an infection in a human or animal subject the method comprising administration to the subject of an effective amount a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.
- 5 63. A method according to claim 62 wherein treatment is therapeutic or prophylactic.
64. A method of treating an infection or condition in a subject that is characterised by biofilm formation comprising administering a compound  
10 according to any one of claims 18, 28, 34, 38, 39 or 40.
65. A method according to claim 64, wherein the condition is cystic fibrosis.
66. A method according to claim 64, wherein the condition is dental caries,  
15 periodontitis, otitis media, muscular skeletal infections, necrotising fascitis, biliary tract infection, osteomyelitis, bacterial prostatitis, native valve endocarditis, cystic fibrosis pneumonia, meloidosis.
67. A method according to claim 64, wherein the condition is nosocomial  
20 infection.
68. A method according to claim 67, wherein the infection is ICU pneumonia or an infection associated with sutures, exit sites, arteriovenous sites, scleral buckles, contact lenses, urinary catheter cystitis, peritoneal dialysis (CAPD)  
25 peritonitis, IUDs, endotracheal tubes, Hickman catheters, central venous catheters, mechanical heart valves, vascular grafts, biliary stent blockage, and orthopaedic devices, penile prostheses.
69. A method according to claim 64, wherein the infection is selected from the  
30 group a skin infection, burn infection and wound infection.
70. A method according to any one to claims 64 to 69, wherein the is an immunocompromised individuals.

71.A method for treating or preventing biofilm formation on a surface, the method comprising contacting the surface with a compound according to any one of claims 18, 28, 34, 38, 39 or 40.

5 72.A method according to claim 71, wherein the surface is a non-biological surface.

73.A method according to claim 71, wherein the surface is a natural surface.

10 74.A method according to claim 71, wherein the surface is a surface of a plant, seed, wood, fibre or hair.

75.A method according to claim 71, wherein the surface is a biological surface.

15 76.A method according to claim 75, wherein the surface is a surface of a tissue, membrane or skin.

77.A method according to claim 71, wherein the surface is a hard surface.

20 78.A method according to claim 77, wherein the surface is formed of a metal, an organic and inorganic polymer, a natural or synthetic elastomer, board, glass, wood, paper, concrete, rock, marble, gypsum and ceramic materials which optionally are coated.

25 79.A method according to claim 71, wherein the surface is a coating.

80.A method according to claim 79, where in the coating is an enamel, varnish or paint.

30 81.A method according to claim 71, wherein the surface is a soft surface.

82.A method according to claim 81, wherein the surface is a surface of a fibre.

83.A method according to claim 82, wherein the fibre is in the form of a yarn, a  
35 textile, a vegetable fibre, rock wool.

84. A method according to claim 71, wherein the surface is a porous surfaces.

85. A method according to claim 71, wherein the surface is a surface of process equipment or components of cooling equipment.

5

86. A method according to claim 85, wherein the process equipment is for a cooling tower, a water treatment plant, a dairy processing plant, food processing plant, a chemical process plant or a pharmaceutical process plant or a component thereof.

10

87. A method according to claim 86, wherein the surface is that of a filter.

88. A method according to claim 87, wherein the filter is a membrane filter.

15

89. A method according to claim 71, wherein the surface is a surface of toilet bowls, bathtubs, drains, highchairs, counter tops, vegetables, meat processing rooms, butcher shops, food preparation areas, air ducts, air-conditioners, carpets, paper or woven product treatment, nappies(diapers), personal hygiene products, and washing machines.

20

90. A method according to claim 71, wherein the surface is an industrial surface.

91. A method according to claim 71, wherein the surface is a medical surface.

25

92. A method according to claim 71, wherein the surface is a hospital, veterinary hospital surface, mortuary surface and funeral parlour surface.

30

93. A dentifrice, a mouthwash or a composition for the treatment of dental caries comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.

94. A composition for treatment of acne comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.

35

95. A composition for cleaning and disinfecting contact lenses comprising a



compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.

96. A medical device incorporating a compound of any one of claims  
comprising a compound in accordance with any one of claims 18, 28, 34,  
5 38, 39 or 40 on at least one surface thereof.
97. An implant device having at least one surface associated with compound  
according to any one of claims comprising a compound in accordance with  
any one of claims 18, 28, 34, 38, 39 or 40.  
10
98. An implant device according to claim 97, wherein the device is an artificial  
heart valve or hip joint, an indwelling catheter, pacemaker, surgical pin and  
the like.
- 15 99. An antifouling composition comprising an effective amount of a compound  
of any one of claims comprising a compound in accordance with any one of  
claims 18, 28, 34, 38, 39 or 40.
100. An antifouling coating composition, the composition comprising an  
20 effective amount of a compound according to any one of claims comprising  
a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.
101. An shellfish or aquaculture apparatus having at least one surface  
associated with a compound of any one of claims comprising a compound  
25 in accordance with any one of claims 18, 28, 34, 38, 39 or 40.
102. A biofilm removing or inhibiting composition comprising an amount of a  
of a compound according to any one of comprising a compound in  
accordance with any one of claims 18, 28, 34, 38, 39 or 40 and a vehicle or  
30 carrier, wherein the amount of the mixture is effective to remove or disrupt  
a bacterial biofilm or inhibit normal biofilm formation.
103. A composition according to claim 102, additionally comprising a  
surfactant selected from group consisting of anionic, nonionic, amphoteric,  
35 biological surfactants and mixtures thereof.

104. A composition of claim 103 further comprising a compound selected from the group consisting of biocides, fungicides, antibiotics, and mixtures thereof.
- 5 105. A method of removing biofilm from a surface comprising the step of administering a cleaning-effective amount of a compound of claim comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40 to a biofilm-containing surface.
- 10 106. A method of preventing biofilm formation on a surface comprising the step of administering an effective amount of the compound according any one of claims comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40 to a surface, wherein the amount is effective to prevent biofilm formation.
- 15 107. A method of claim 106, wherein the surface is a hard, rigid surface.
108. A method of claim 106, wherein the surface is selected from the group consisting of a drainpipe, glaze ceramic, porcelain, glass, metal, wood, 20 chrome, plastic, vinyl, and formica.
109. A method of claim 106, wherein the surface is a soft, flexible surface.
110. A method of claim 106, wherein the surface is selected from the group 25 consisting of shower curtains or liners, upholstery, laundry, and carpeting.
111. A method of claim 106, wherein the biofilm is produced by a bacteria of the class *Pseudomonas*.
- 30 112. The method of claim 106, wherein the bacteria is of the species *Pseudomonas aeruginosa*.
113. A method of claim 106, wherein the biofilm is produced by an organism selected from the group consisting of bacteria, algae, fungi and protozoa. 35
114. A dentifrice comprising an effective amount of a compound of any one of

claims comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40, wherein the amount is effective to either prevent or remove biofilm formation.

5 115. A mouthwash comprising an effective amount of a compound of any one of claims comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40, wherein the amount is effective to either prevent or remove biofilm formation.

10 116. An optical lens, wherein at least a part of a surface of the lens is associated with a compound according to any one of claims comprising a compound in accordance with any one of claims 18, 28, 34, 38, 39 or 40.

15 117. An optical lens according to claim 116, wherein the lens is a contact lens.